

December 3, 2012

**Natural Gas Trends****Highlights****NATURAL GAS AND THE  
TRANSFORMATION OF THE U.S. ENERGY  
SECTOR: ELECTRICITY**

Domestic natural gas production was largely stagnant from the mid-1970s until about 2005. Planning had been under way by the early 2000s to construct about 40 liquefied natural gas import terminals along the U.S. coasts to meet anticipated rising demand. However, beginning in the late 1990s, advances linking horizontal drilling techniques with hydraulic fracturing allowed drilling to proceed in shale and other formations at much lower cost. The result was a slow, steady increase in unconventional gas production.

As the technology improved and spread, domestic shale gas output began to increase rapidly, such that by 2008 commentators began to routinely speak of a shale gas “boom.” Today, shale gas accounts for about 30% of total U.S. natural gas production—up from only 4% in 2005 helping to make the United States the largest producer of natural gas in the world by 2009. Within a decade, the question of how much more dependent the country would become on natural gas imports had been replaced by how much the U.S. gas supply will affect the economics and geopolitics of energy around the globe.

According to a DOE study an emerging question given these changes in the market for natural gas is how might demand for natural gas in the electric sector respond to a variety of policy and technological developments in the long run?



Although the long-term outcome of the shale gas revolution is far from decided, significant shifts are already apparent in U.S. power markets. In that context,

low-price natural gas has had the greatest impact to date on generation by coal power plants. Since 2008, coal's share of annual generation has declined from 48% to 36% as of August 2012. This switch from coal to natural gas, combined with growth of renewable energy generation, has led to a reduction of carbon dioxide emissions in the U.S. power sector of about 300 million tons—equivalent to 13% of total power sector emissions in 2008.

**Data**

- January 2013 Natural Gas Futures Contract (as of Nov. 30), NYMEX at Henry Hub closed at \$3.561 per million British thermal units (MMBtu)
- November Light, Sweet Crude Oil Futures Contract (as of Nov. 30), NYMEX at Cushing closed at \$88.91 per U.S. oil barrel (Bbl.) or approximately \$14.16 per MMBtu

**Last week: U.S., Texas warmer than normal**

For the week beginning 11/23/12 and ending 11/30/12, heating degree days (HDD) were lower than normal for Texas and lower than normal for the U.S.

Source: [www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

HEATING DEGREE DAYS (HDD)				
City or Region	Total HDD for week ending 11/30/12	*Week HDD + / - from normal	Year-to-date total HDD	* YTD % +/- from normal
Amarillo	115	-55	643	-30%
Austin	53	-14	252	1%
DFW	54	-46	288	-24%
El Paso	66	-52	264	-47%
Houston	39	-22	168	-29%
SAT	39	-27	175	-28%
Texas**	50	-32	274	-18%
U.S.**	115	-5	691	-2%

\* A minus (-) value is warmer than normal; a plus (+) value is cooler than normal. NOAA uses 65° Fahrenheit as the 'normal' basis from which HDDs are calculated. \*\* State and U.S. degree days are population-weighted by NOAA.

-999 = Normal Less Than 100 or Ratio Incalculable

**Last week: U.S. natural gas storage at 3,877 Bcf**

For the week ending 11/23/2012 working gas in storage increased from 3,873 Bcf to 3,877 Bcf. This represents a net decrease of 4 Bcf from the previous week. Stocks were 26 Bcf higher than last year at this time and 90 Bcf above the 5-year average of 3,687 Bcf.

Source: <http://ir.eia.gov/ngs/ngs.html>

U.S. WORKING GAS IN STORAGE				
Region	Week ending 11/23/12	Prior week	One-week change	Current Δ from 5-YR Average (%)
East	2,042	2,054	-12	20.0%
West	548	544	4	10.0%
Producing	1,287	1,275	12	11.7%
Lower 48 Total	3,877	3,873	4	5.2%

Lower 48 states, underground storage, units in billion cubic feet (Bcf)

Source: <http://www.osti.gov/bridge/>

**Last week: U.S. gas rig count down 4**

The gas rig count for the U.S. was down 4 when compared to the prior week and down 432 when compared to 12 months ago. The total rig count for the U.S. was down 6 for the week and down 182 when compared to 12 months ago. The total rig count includes both oil and natural gas rotary rigs.

Source: Baker Hughes

BAKER HUGHES ROTARY RIG COUNT				
	As of 11/30/2012	+/- prior week	Year ago	+/- year ago
Texas	855	2	902	-47
U.S. gas	424	-4	856	-432
U.S. oil	1386	-2	1132	254
U.S. total	1811	-6	1993	-182
Canada	399	12	484	-85

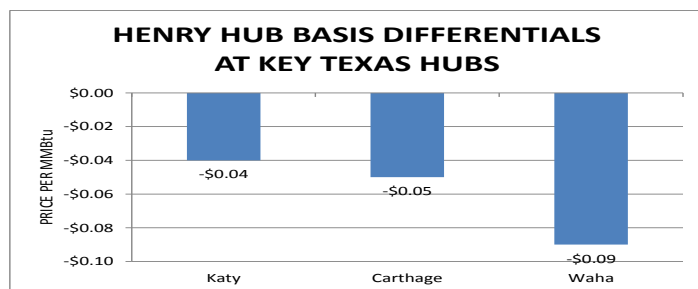
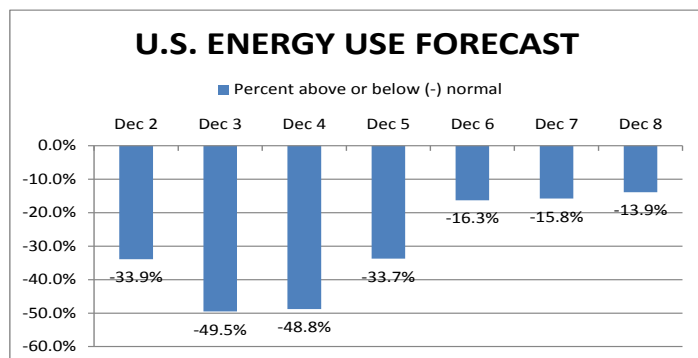
Numbers are excerpted and not meant to be totaled

**This week: U.S. energy use sharply below normal**

U.S. energy use is predicted to be below normal throughout the week of December 2. According to the Dominion Energy Index, as shown below, Dominion forecasts total U.S. residential energy usage, a component of which is natural gas.

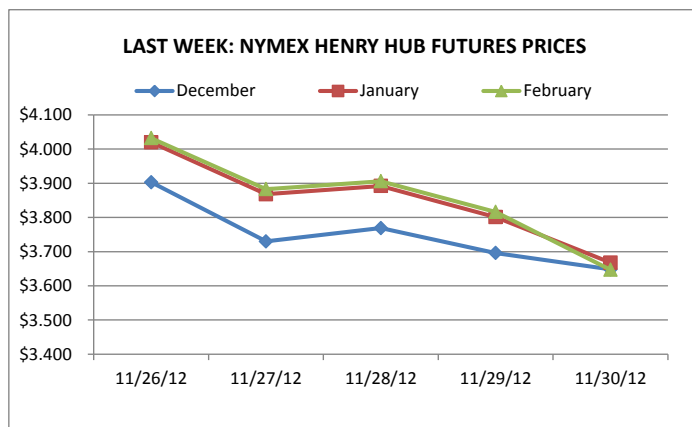
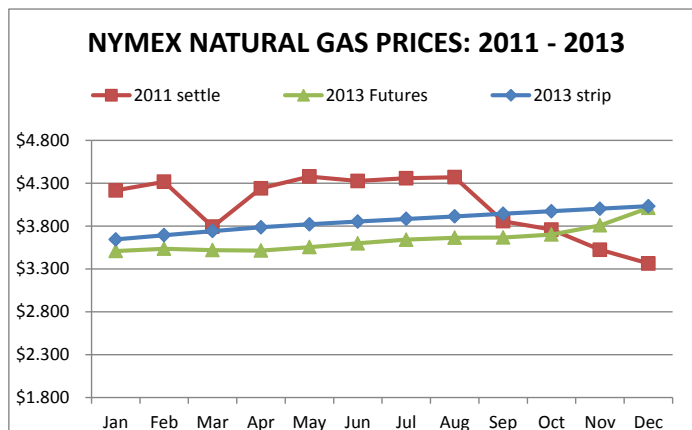
Source:

Dominion Energy Index

**NATURAL GAS PRICE SUMMARY AS OF 11/30/2012**

	This Week	+/- Last Week	+/- Last Year	12-Month Strip Avg.
US January futures				
NYMEX	\$3.561	-\$0.342	-\$0.198	\$3.544

**Strip prices.** Natural gas strip prices for 2013, shown below in blue, are the average of daily settlement prices for the next twelve months of natural gas futures contracts.



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